

2N5457 (SILICON)

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Silicon N-channel junction field-effect transistors depletion mode (Type A) designed for general-purpose audio and switching applications.


CASE 29 (5)
(TO-92)

Drain and source may be interchanged.

MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|--|-------------|-------------|----------------------------|
| Drain-Source Voltage | V_{DS} | 25 | Vdc |
| Drain-Gate Voltage | V_{DG} | 25 | Vdc |
| Reverse Gate-Source Voltage | $V_{GS(r)}$ | 25 | Vdc |
| Gate Current | I_G | 10 | mAdc |
| Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C | P_D | 310 2.82 | mW mW/ $^\circ\text{C}$ |
| Operating Junction Temperature | T_J | 135 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{stg} | -65 to +150 | $^\circ\text{C}$ |

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

| Characteristic | Symbol | Min | Typ | Max | Unit |
|----------------|--------|-----|-----|-----|------|
|----------------|--------|-----|-----|-----|------|

OFF CHARACTERISTICS

| | | | | | |
|---|---------------|-------------------|-------------------|-------------------|------|
| Gate-Source Breakdown Voltage ($I_G = -10\ \mu\text{Adc}$, $V_{DS} = 0$) | BV_{GSS} | 25 | — | — | Vdc |
| Gate Reverse Current ($V_{GS} = -15\ \text{Vdc}$, $V_{DS} = 0$) ($V_{GS} = -15\ \text{Vdc}$, $V_{DS} = 0$, $T_A = 100^\circ\text{C}$) | I_{GSS} | — | — | 1.0 200 | nAdc |
| Gate-Source Cutoff Voltage ($V_{DS} = 15\ \text{Vdc}$, $I_D = 10\ \text{nAdc}$) | $V_{GS(off)}$ | 0.5 1.0 2.0 | — | 6.0 7.0 8.0 | Vdc |
| Gate-Source Voltage ($V_{DS} = 15\ \text{Vdc}$, $I_D = 100\ \mu\text{Adc}$) ($V_{DS} = 15\ \text{Vdc}$, $I_D = 200\ \mu\text{Adc}$) ($V_{DS} = 15\ \text{Vdc}$, $I_D = 400\ \mu\text{Adc}$) | V_{GS} | — | 2.5 3.5 4.5 | — | Vdc |

ON CHARACTERISTICS

| | | | | | |
|--|-------------|-------------------|-------------------|------------------|------|
| Zero-Gate-Voltage Drain Current* ($V_{DS} = 15\ \text{Vdc}$, $V_{GS} = 0$) | I_{DSS}^* | 1.0 2.0 4.0 | 3.0 6.0 9.0 | 5.0 9.0 16 | mAdc |
|--|-------------|-------------------|-------------------|------------------|------|

DYNAMIC CHARACTERISTICS

| | | | | | |
|--|--------------|----------------------|----------------------|----------------------|------------------|
| Forward Transfer Admittance* ($V_{DS} = 15\ \text{Vdc}$, $V_{GS} = 0$, $f = 1\ \text{kHz}$) | $ y_{fs} ^*$ | 1000 1500 2000 | 3000 4000 4500 | 5000 5500 6000 | μmhos |
| Output Admittance* ($V_{DS} = 15\ \text{Vdc}$, $V_{GS} = 0$, $f = 1\ \text{kHz}$) | $ y_{os} ^*$ | — | 10 | 50 | μmhos |
| Input Capacitance ($V_{DS} = 15\ \text{Vdc}$, $V_{GS} = 0$, $f = 1\ \text{MHz}$) | C_{iss} | — | 4.5 | 7.0 | pF |
| Reverse Transfer Capacitance ($V_{DS} = 15\ \text{Vdc}$, $V_{GS} = 0$, $f = 1\ \text{MHz}$) | C_{rss} | — | 1.5 | 3.0 | pF |

*Pulse Test: Pulse Width $\leq 630\ \text{ms}$; Duty Cycle $\leq 10\%$